defining a transmission from a mobile station to the base station as an uplink direction;

defining a transmission from the base station to a mobile station as a downlink direction;

forming a channel by at least one time slot per time-division multiplex frame, wherein the packet data transmission from a plurality of mobile stations takes place via the channel;

combining frames to form a macroframe;

providing a time slot for signaling at cyclic intervals in the channel; and

allocating, by the base station, just one time slot for signaling in the uplink direction from a respective mobile station in accordance with a predetermined sequence of the mobile stations, where even if the respective mobile station does not transmit any packet data for the duration of a current and next macroframe, the respective mobile station may transmit in the allocated time slot for signaling.

19. (ONCE AMENDED) The method as claimed in claim 18, further comprising:

determining a timing advance for the respective mobile station from transmissions by the mobile station in the allocated time slot; and

transmitting the timing advance in a time slot for signaling in the downlink direction to the corresponding mobile station.

20. (ONCE AMENDED) The method as claimed in claim 18, further comprising:

defining the timing advance and values for a transmission power setting independently of one another.

21. (ONCE AMENDED) The method as claimed in claim 20, further comprising:

defining, additionally, the timing advance and the values for the transmission power setting from the time slots for packet data transmission.

22. (ONCE AMENDED) The method as claimed in claim 18, further comprising:

using transmission block types of a predetermined size for specific configuration data in the time slots for signaling in the uplink direction.

23. (ONCE AMENDED) The method as claimed in claim 18, further comprising:

transmitting configuration data defined in the downlink direction in time slots for packet data transmission.

24. (ONCE AMENDED) The method as claimed in claim 18, further comprising:

providing, by the base station, the timing advance for the configuration of the radio interface without being controlled by a base station controller.

25. (ONCE AMENDED) The method as claimed in claim 18, further comprising:

combining a plurality of time slots for signaling to form a signaling block.

26. (ONCE AMENDED) The method as claimed in claim 25, further comprising:

combining the time slots for signaling in accordance with a sequence which can be predetermined, wherein remaining time slots are provided for an adjacent cell measurement of the mobile station.

27. (ONCE AMENDED) The method as claimed in claim 18, further comprising:

providing information in time slots for signaling with additional coding.

28. (ONCE AMENDED) The method as claimed in claim 18, further comprising:

enabling the packet data transmission to take place in both the uplink and downlink directions independently of one another.

29. (ONCE AMENDED) The method as claimed in claim 18, further comprising:

designating, additionally, the mobile stations for packet data transmission by abbreviated identifiers; and

allocating, via the time slots for signaling in the downlink direction, one or more time slots for signaling in the uplink direction to the mobile stations by means of indicator messages which contain abbreviated identifiers and time slot designations.

30. (ONCE AMENDED) The method as claimed in claim 18, further comprising:

transmitting, by a mobile station per time slot for signaling in the uplink direction, a self-contained message which contains a reception level of the mobile station.

31. (ONCE AMENDED) The method as claimed in claim 18, further comprising:

providing transmissions, from the mobile station in the time slots for signaling allocated to it, access blocks having an extended preceding or subsequent guard time, whose transmission

time results from a preceding transmission time, a signaled timing advance and an offset value.

32. (ONCE AMENDED) The method as claimed in claim 31, further comprising:

choosing the offset value such that a range which corresponds to the offset value is greater than the distance which the mobile station can travel between two transmissions for timing advance definitions at a maximum permissible speed.

33. (ONCE AMENDED) A base station system for configuring a radio interface between a mobile station and a base station of a time-division multiplex mobile radio system for packet data transmission, comprising:

a base station;

a plurality of mobile stations, wherein a transmission from a mobile station to the base station is defined as an uplink direction, and a transmission from the base station to a mobile station is defined as a downlink direction;

a channel formed by at least one time slot per time-division multiplex frame, wherein the packet data transmission from the plurality of mobile stations takes place via the channel;

a macroframe formed from a combination of frames;

a time slot for signaling provided at cyclic intervals in the channel; and

a control device to allocate time slots to the plurality of mobile stations, wherein just one time slot for signaling in the uplink direction is allocated to a respective mobile station according to a predetermined sequence of the mobile stations, the allocation being independent of any packet data transmission so that the mobile station transmits in the time slot allocated for signaling even if the mobile station does not transmit any packet data for the duration of a current and next macroframe.

34. (ONCE AMENDED) The base station system as claimed in claim 33, wherein timing advances for the mobile stations are transmitted as configuration data for the plurality of mobile stations in a time slot for signaling in the downlink direction.